

New England Deaconess Hospital

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This year's annual report is dedicated to the nursing staff whose members make up a major portion of the hospital's health care team. Since nurses are the only group continuously with patients, from admission to discharge, it is they with whom the patients most often identify and who carry most of the major responsibility for helping the patient adjust to a hospital experience.

The purpose of nursing service is to provide individualized and comprehensive nursing care directed towards rehabilitation and health maintenance. The several thousand people admitted to the New England Deaconess Hospital each year require different approaches in nursing care—care suited to their individual needs, because of age, diagnosis, duration of their disease, complications, educational levels, etc. From the nurse, the patient seeks personal care, general information, knowledgeable guidance, active assistance, direct and indirect motivation, and positive encouragement.

The process by which nursing provides this care through interaction with patients includes: assessment, diagnosis, planning, implementation, and evaluation.

Since the earliest days of the Deaconess founders, the educational program for nurses has been designed to attract young people with a sense of commitment to service coupled with the recognition of changing health care trends and societal needs. The current curriculum is based upon a theoretical framework in which the concepts of wellness, illness, stress and communication encompass the major health problems of today and are developed by the students using the nursing process in a problem-solving approach.

Charles Dickens started his popular novel, *The Tale of Two Cities*, with the dual observation that these were "the best of times and the worst of times." In a sense this quote could be applied to the health care industry today. Fortunately for our hospital, 1976 was, on balance, a good year as this report will indicate. However, the Deaconess is not immune to basic industry trends and, in fact, has been feeling the pinch of increasing regulation during the year just ended.

1976 Results For years our occupancy rate has been among the highest of any major Boston hospital, and 1976 was no exception. We established a new record with full year occupancy reaching 94.5% ... well above generally accepted norms for acute care hospitals. While we can be pleased with this, it creates several potentially serious problems.

First, it places a continuous and heavy burden on our entire organization, particularly our nursing staff; second, it

means that on many days every bed is full and very ill patients sometimes are forced to wait before being admitted; and finally, we have had a backlog during most of the year of patients awaiting admission for elective procedures or diagnostic work ups.

We are seeing sicker patients. Moreover, there is pressure on our medical staff to discharge patients as soon as possible in order to admit another patient. While this is compatible with an efficient utilization factor, it is not a completely ideal situation.

Financially, results were mixed. Gross income from patients was above budget due to higher than expected occupancy.



However, expenses were also higher for the same reason. Normally, the hospital would have benefited from this inasmuch as revenues rise faster than expenses. However, under Massachusetts Chapter 424 enacted in 1975, our allowable revenue ceiling was exceeded and we were not permitted to retain all of our income. This excess income has been deferred into fiscal 1977. As a result of this and a non cash write-off we suffered an operating loss amounting to \$386,000. More will be said about the regulatory climate later in this report.

Our working capital cash declined as expected, due almost entirely to third party settlements under which we were obligated to repay formula over-reimbursements received in prior years.

Building Program Two major building projects were completed during 1976. The William Meissner Laboratory building contains five floors of pathology laboratories and our department of Therapeutic Radiology. The lab floors were occupied in January and the radiology area in April. Both departments moved their staff and equipment into the new building without any interruption in patient service.

Likewise, the Audrey K Kennedy Hall was opened on schedule in mid-September for the incoming freshmen, the returning upperclassmen, the faculty and the administrative staff of our School of Nursing. The new school was formally dedicated in late October.

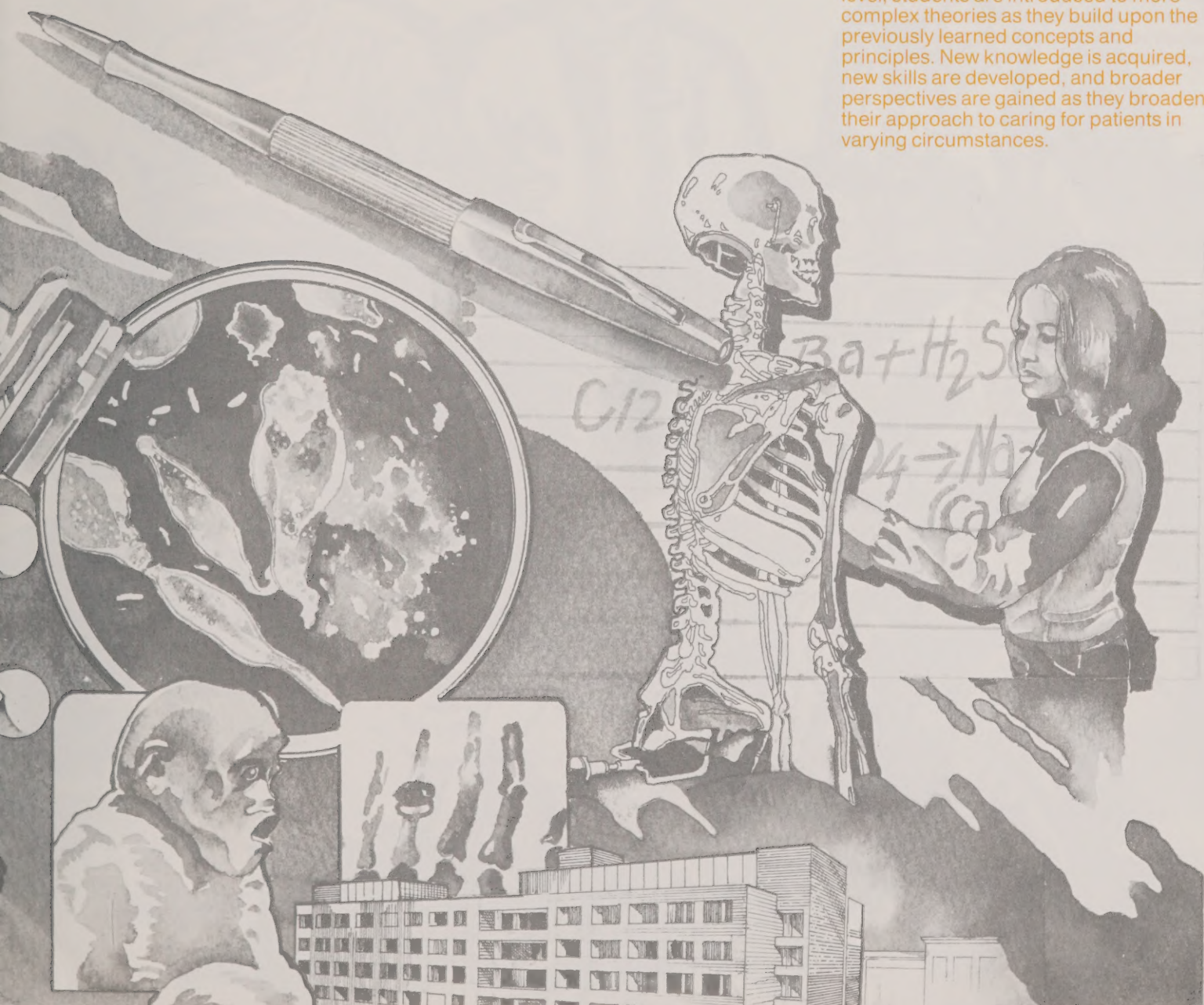
Bringing these two major facilities to operational status on schedule and on budget is a tribute to our hard-working Building Committee chaired by John Carlson, to Hubert Sycamore, Cornelius Keating and their staff. Both buildings are truly beautiful and perhaps more important, very functional.

As previously reported we launched a fund drive to raise \$1,050,000 to supplement a major grant from the Frederick J. Kennedy Foundation for the Nursing School project. We announced the successful conclusion of this

campaign in April, 1976. A "second effort" was launched in July, following receipt of a \$100,000 challenge grant from the Kresge Foundation. Here too we were successful in raising more than the required matching amount in less than three months due to the very strong support we received from our Trustees, Corporate Members, the Friends, our Medical Staff and several local charitable trusts and foundations.

Malpractice Insurance As a result of rapidly rising malpractice insurance premiums, the Harvard Teaching Hospital group formed its own insurance company in the spring of 1976 to offer both malpractice and general liability insurance to its members, their medical staffs, house officers and employees. The Deaconess elected to purchase its malpractice and general liability insurance from this company which is known as Controlled Risk Insurance Company, at an estimated annual saving of \$87,000.

Nursing students study biological, physical, and social sciences as well as pharmacology, nutrition, and growth and development during their 113 weeks of concurrent nursing theory and related clinical laboratory experiences. With each level, students are introduced to more complex theories as they build upon the previously learned concepts and principles. New knowledge is acquired, new skills are developed, and broader perspectives are gained as they broaden their approach to caring for patients in varying circumstances.



New Developments In November, 1975, the hospital purchased The Chrysler Agency property fronting on Brookline Avenue which is contiguous to the Cancer Research Institute and Harris Hall. After a detailed feasibility study, we found we could inaugurate a totally new materials handling system within the hospital using this building as a receiving and storage center. By diverting almost all deliveries to this facility, we will significantly reduce truck traffic on Pilgrim Road, consolidate the distribution of supplies within the hospital proper and will save an estimated \$37,000 on an annual basis. We were awarded a determination of need for this project by the Public Health Council in July and the conversion is expected to be complete in December, 1976.

Parking continues to be a very serious problem for visitors, employees and medical staff alike. Our Pilgrim Road garage was designed to allow for a 350 car lateral extension. In December, 1975 the first step toward enlarging this garage was taken when we demolished the Autumn Street apartment house to make

way for the planned expansion of the existing garage. Subsequently, we reached agreement in principle with the City of Boston regarding payments in lieu of taxes on the Autumn Street property and filed for the necessary variances and building permit required to be in hand before we can apply for a determination of need for this much needed addition.

With Harris Hall and three floors in Palmer vacated as a result of the School of Nursing and Laboratories moves into new buildings, we have been actively studying how to best use this space. We must be careful not utilize these areas in such a way as to block future expansion. With this in mind, we retained a professional consulting firm which has recommended the Harris Hall site as the most logical location for any major addition to our clinical facilities in the future. Meanwhile an inhouse task force, having studied various options, has made a number of recommendations designed to meet the most urgent space needs of several clinical and administrative departments. This effort will continue well into 1977.

Trustees The reorganization of the Board of Trustees approved last year, in accordance with which the Board is being reduced from 51 to 21 members over a five year period, the full Board is meeting monthly and the Medical Staff has Board membership, is working out very successfully. Attendance at meetings is high, discussion lively, and the Board is functioning extremely well despite its currently large size. Most important, perhaps, is that the entire Board is becoming more knowledgeable about and involved in the policy determination function for our hospital.

Regulation For several years we have been predicting that the growth of controls at both the federal and state levels would sooner or later begin to impinge on the ability of the health care industry to serve the public. It appears this day has now arrived. As mentioned earlier, our operating deficit this year was partially a direct result of Chapter 424 of the General Laws of Massachusetts and its revenue/cost limitations. In addition, even total cost reimbursement on services rendered to Medicaid patients, was not received due to arbitrary ceilings established in Washington. Moreover, our Medical Staff is being told by outside review agencies how long they can keep their patients in the hospital;

By graduation the students are independently able to plan, implement and evaluate nursing care, through the use of problem solving, for a group of patients in non-critical areas and to be self-directed to increase knowledge and experience.

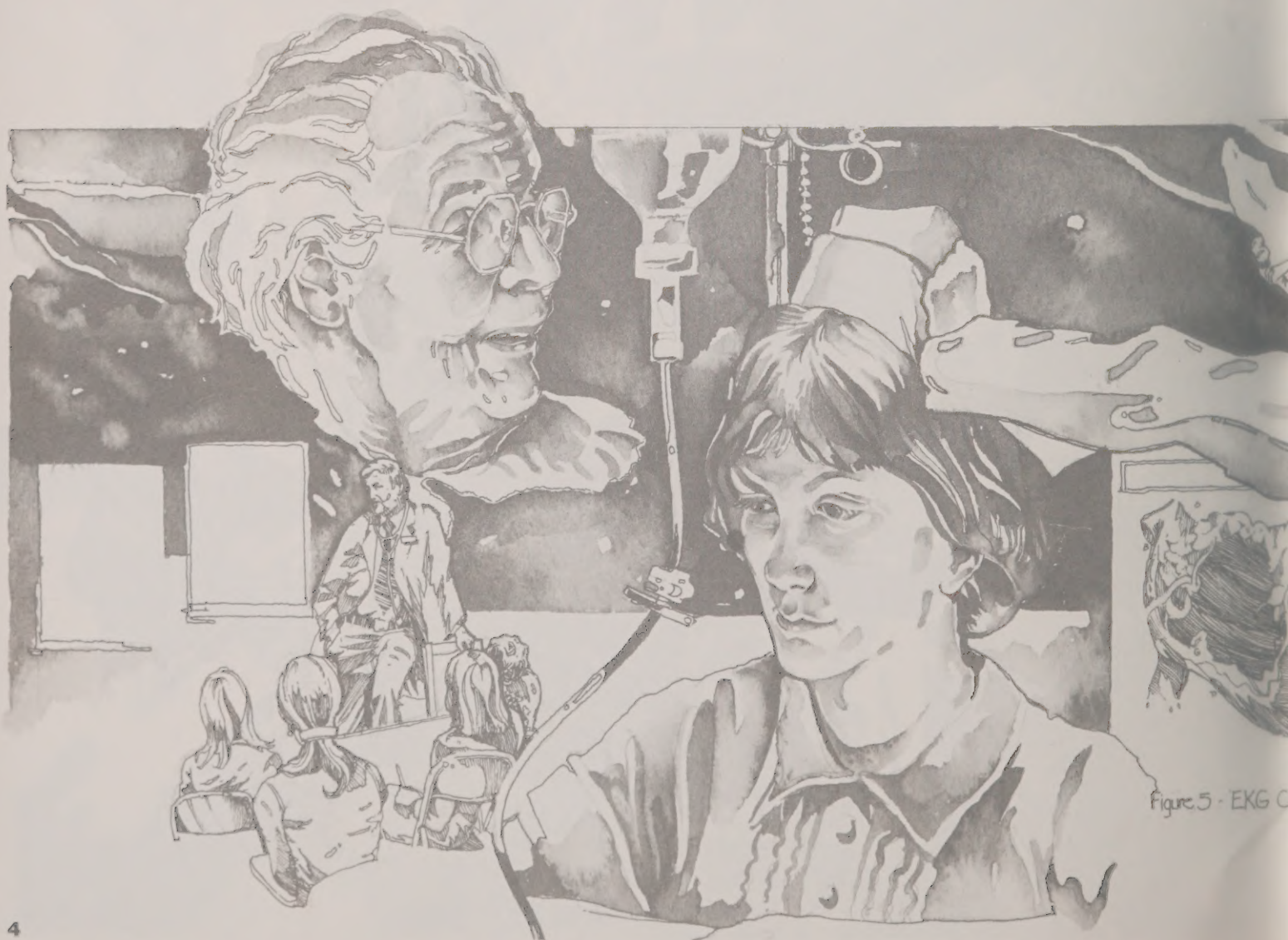


Figure 5 - EKG C

and we are not reimbursed for any days of hospitalization which exceed these pre-established standards unless the additional stay can be justified to an outside agency.

Current rigid cost containment controls will be expanded over the next few years, and the quality of care will inevitably deteriorate and the public will suffer in the long run.

In Memoriam Two long-time Trustees passed away during 1976: Henry S. Rogerson who was first elected a Trustee in 1932 and who served as our Treasurer for 17 years; and Helen G. Wardwell, who was a Founder of the Friends, its third President, and a Trustee for over 30 years. The hospital is indebted to both of these individuals for their deep interest, wise advice and strong support over many years. We will miss them both very much.

In Conclusion We approach fiscal 1977 with mixed emotions. Our hospital continues to be sound financially, has a strong administrative team and a dedicated medical staff. However, growing regulatory controls and concomitant fiscal restraints will inevitably lead to greater operating difficulties.

The Deaconess is fortunate, however, to have a large number of people loyal to the hospital and concerned for its patients. We are truly grateful to them. We wish, also, to express our thanks to our Trustees, our Medical Staff, the Friends and our administrative team for their assistance during the past year. Their continued support and guidance will be vital in meeting the challenges in the year ahead.

C. Vincent Vappi
Chairman of the Board

Laurens MacLure
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Report of the Department of Medicine

When a patient is admitted to a unit the nurse interviews the patient and his family, using a nursing assessment form as a guide to determine such problems as inability to perform self-care, lack of knowledge of how to live with a chronic disease, or anxiety about forthcoming surgery. This information is shared with others to provide a basis for continuity of care. As a patient's condition changes, needs will also change. Thus, the nurses must continually update and revise the plan of nursing care to reflect these individual needs.

The Department of Medicine currently is conducting a review of its major activities in order to assist the hospital Long-Range Planning Committee to prepare a program for future development. Some of the statistical information which has been analyzed thus far may be of interest with respect to present events.

In fiscal 1976 there were 7,420 medical admissions. This was 56% of the total hospital patients. The distribution among divisions of the staff was essentially unchanged from previous years with Lahey Medical admissions amounting to 10.2% of total admissions, Joslins 28.1, Independent Staff including Deaconess Medicine 15, and Lyman Hoyt Unit 2.3.

This data included admissions to the Diabetes Treatment Unit which subsequently have increased with the opening of the new facility. However, the data does not include the holding beds available in the Observation Unit, which add greatly to the daily service load of the medical department and are utilized heavily by all divisions of the staff. The latter has been of inestimable help in triage of acutely ill patients and in the provision of temporary flexibility during periods of severe bed shortage. The number of patients given emergency support in this facility by the medical house officers and senior staff and then discharged home or admitted has risen progressively. In 1975/76 there were 7,171 patients seen in the Observation Unit. Patients treated in the ambulatory cancer chemotherapy clinic have contributed heavily to this expanded

caseload, which has shown a 28% increase in the past year to nearly 2,000 visits per year. Increasing success and safety of chemotherapy programs have made it possible to shift many patients to an ambulatory status for the year or more which may be necessary before the disease is brought under control.

The various types of illness for which medical patients have been hospitalized have remained relatively constant in the past few years. Endocrine disorders, chiefly diabetes, continue to be most frequent. This is followed by cardiology of all types, then cancer, gastroenterology, nephrology, and diverse infectious and degenerative disorders.

While service activities of the Department remain relatively constant, educational responsibilities have increased exponentially. As a result of this the space needs have become critical. We are now responsible for three levels of teaching: undergraduate (medical students), post graduate (Interns,



residents and Fellows) and continuing-medical education (Senior staff). Of these, only the first has remained unchanged. An average of 60 Harvard students per year and 15 to 20 students from other medical schools of the country come here for one or two specific elective courses. During a 12-year period the medical house staff has grown from 6 residents to its present size of 46 and is further strengthened by an average of from 15 to 25 Fellows supported by the Clinics or by outside hospital grants for medical subspecialty training. The Department is responsible for monitoring the education of all of these trainees and certifying their competence to the different specialty boards. In addition, there are now approximately 200 physicians for whom the Department is educationally responsible due to the requirements of Continuing Medical Education. The speed with which this new development has spread throughout the country is unparalleled. Medical and scientific knowledge is growing so rapidly that the factual base on which a physician determines diagnosis and treatment is estimated to turn over once every

decade. Although the traditional standards of high quality care must continue, regulatory boards and agencies mandate that a physician must be relicensed and recertified at regular intervals to prove on-going competence and to establish continuing exposure to new knowledge. In addition, third party carriers are demanding that a physician whose medical audit is significantly different from the norm receive appropriate education to improve his performance. In some states the profession has chosen to take periodic examinations. In Massachusetts the emphasis has been on proof of participation in hospital programs specifically designed and approved for senior staff education.

Despite the limitations of space and the competitive nature of grant funds, members of the Department conducted a dozen research projects during the past year for which they raised, collectively, \$200,000 in support. This was independent of a large number of

research chemotherapy protocols conducted as joint clinical studies with the Farber Center. Publications emanating from different members of the staff continued to be strong and diverse. Most dealt with clinical topics reflecting the interests of the authors. Such clinical research is usually unsupported financially. It is of the highest credit to the staff that so many are willing to give so liberally of their after-hours time and energy to collect, collate and reproduce clinical data for dissemination to the profession at large.

Finally, to measure the impact that these diverse staff activities have on the hospital, we must evaluate the possible results in terms of patient care. If we can not see at least a probable benefit, it has no rightful place here. With the increase in scientific knowledge and the frightening array of new instruments and machines, it is imperative that physicians remain aware that they are responsible for whole persons not segments or diseased parts. When a patient leaves this hospital, he always knows there are many persons who cared, including a strong corps of dedicated nurses. But this cannot relieve the physician of his personal responsibility. It is important, as never before, that doctors everywhere, especially in the show-case of hospitals, continue to dedicate themselves to the highest ideals which can be attained in ministering to the sick.

James L. Tullis, M.D.,
Chairman



Report of the Department of Diagnostic Radiology

Nursing practice today encompasses a far greater scope and depth than it did in years past. The "laying-on-of-hands" — bathing, back rubs, turning, positioning, feeding, administering medications — are still important and very much a part of nursing care, but there is opportunity for creativity, self-direction, and the kind of implementation which aims at optimum recovery. Although the nurse still depends upon and implements the doctor's orders and treatment plan, she also forms independent judgments and makes decisions about nursing care based on her unique knowledge.

The Diagnostic Radiology Department continues to expand and undergo internal changes to increase the efficiency of service and decrease waiting time for patients. The second darkroom on Farr 2 has been remodeled to accommodate the work from special procedures, angiography, and fluoroscopy. Nuclear Medicine will move this Fall into its permanent location on Baker 2, and a suite of three I.V.P. rooms has been established which will also serve as general radiographic rooms to accommodate the increased load from the expansion of the Joslin Clinic, Podiatry, and the Observation Unit. The I.V.P. units will be powered by a single generator. This is a departure from the older concept of having one generator power each unit and has resulted in a saving of approximately \$80,000 in capital expenditure. In addition, an older diagnostic unit will be replaced by an automated chest room.

Nuclear Medicine is an exciting subspecialty in radiology that is expanding rapidly in number and types of examinations. The number of

examinations increased from 1,700 in 1972 to 3,000 in 1975. The hospital has just purchased a large field of view camera and data processing facility to perform complex pulmonary and cardiac examinations. We will routinely do pulmonary ventilation and perfusion scans in addition to cardiac output, left ventricular ejection fractions, myocardial contractility studies, and myocardial imaging for infarction.

The number of Ultrasound examinations has increased to 2,000 in 1975. This will require the service of a full-time Radiologist doing only Ultrasound.

New techniques of examination in the department added this year include discography, lumbar venography, bronchial brush and aspiration biopsies of the pancreas, lymph node, and inoperable lung tumors. Discography and lumbar venography are used in conjunction with conventional myelography for demonstrating herniated intervertebral discs. For discography a fine needle is inserted directly into the disc after a lumbar puncture and contrast material injected in an attempt to reproduce the patient's symptoms and determine extent of disc herniation. When symptoms persist and a herniated disc cannot be demonstrated by other means the peripheral extension of the herniation may be demonstrated



by lumbar venography. This examination is performed by injecting contrast material into the small intervertebral vein. The herniated disc is demonstrated because it compresses and displaces the intervertebral veins. Another procedure, the bronchial brush biopsy, involves placing a deflectable tip catheter into the tracheobronchial tree and selectively guiding it into the terminal bronchi. A small brush attached to a guide wire is inserted through the lumen into the small bronchi. This makes accessible tissue of the lung for diagnosis that could otherwise be obtained only by thorocotomy. Percutaneous pancreatic, lung and lymph node aspirate biopsies are performed when it is necessary to obtain tissue for diagnosis that may obviate the need for surgery.

The Department will continue to maintain the usual high quality of service in patient care, but is also involved in teaching and clinical research activities. Teaching activities include daily radiology conferences with the intern and resident

staff to review and discuss the films of patients with current clinical problems. The staff also participates in Medical Student Teaching at Harvard Medical School. The Department has established a Radiology Seminar held on the first and third Wednesday of each month for the Clinical and Radiology Staff. Guest speakers as well as the Radiology Staff present material from clinical research activities and areas of special interest at the bi-weekly seminars. Dr. Costello and Dr. Gramm have presented papers at major radiological meetings in the United States and Canada on their clinical research projects.

The Angiography and Ultrasound Fellowship within the Department was established in 1974. It continues to be a sought-after position.

During 1976 the School for Radiologic Technology became affiliated with Northern Essex Community College in Haverhill, and presently four students are in training. The Department plans to accept another class of four first-year students in 1977, and will continue to have eight radiologic technology students in training.

During the past year a Certificate of Need Application was filed for a Computerized Axial Tomographic Unit. Computerized tomography is a non-invasive technique of radiographing parts of the body. In addition to being the best methods of examining the brain, there are no associated complications as with other invasive techniques.

The Department is well on its way for staffing of all of the subspecialties of Radiology. Currently, the Department has expertise in the Chest, Bone, Genitourinary, Gastrointestinal, Ultrasound, Angiography, and Special Procedure Sections of Radiology.

Melvin E. Clouse, M.D.
Chairman



Report of the Department of Pathology

The Department of Pathology has been dedicated to providing the best of laboratory medicine to the patients of the New England Deaconess Hospital and in assistance to the members of the medical staff under whatever circumstances the needs dictate. In order to accomplish such a goal reasonably, the factors of economy, availability and speed must be balanced carefully, but always subservient to quality.

The past year has been a very important one for the department largely because of the move into the beautiful new William A. Meissner Laboratory. The increased space, cheery decor, controlled atmosphere, pliability of the structure and more cohesive department relationships have made a real difference in efficiency and a big boost in morale. The department has always had topnotch technologists, secretaries and other personnel who are the essence of the department but even such dedicated persons had become so cramped in our old quarters that work could not be done

as well. All of the department members would want the entire hospital community to realize our gratitude for the new building. The department moved into the building early in 1976 without a break in services to the patients, a real feat when one considers the number of people and the delicate instruments involved in the move. A sobering note must be sounded, however. In the approximately five years that it took for the planning and building of the Meissner Laboratory, considerable growth took place, and so already some laboratories have no significant reserve. It should be pointed out that the laboratory work volume has increased steadily (about 10% in the year) without increase in hospital beds.



Newer and more sophisticated procedures must be added not only to maintain good patient care but to improve on the ability to make better diagnoses and allow better treatment. An anaerobic microbiology, special bacteriology and virology laboratory was added to the department during the year, under the direction of Dr. Dwight W. Lambe, Jr.. The anaerobic microbiology, started under Dr. Skinner, is now well launched and considerably expanded. It is particularly important for the patient population at the Deaconess and is the most rapidly expanding area in microbiology, providing answers to previously baffling etiological puzzles.

Another example of a rapidly expanding section is the Blood Bank. It is an area which is becoming increasingly complex and moving farther and farther from simple, single whole blood transfusions. Leukopheresis and plateletpheresis are two procedures which came from Dr. Tullis' laboratory and which now are done increasingly often in the Blood

Bank. In these procedures, a blood donor's blood is withdrawn, either the platelets or the white blood cells removed, and the rest of the blood returned to the donor and the process repeated several times. In this way more compatible and safe platelets and white blood cells can be obtained in larger quantity from donors related to patients. These components are important in the treatment of some leukemia patients and certain others.

The people in Anatomic Pathology are under increasing pressure to obtain precise diagnoses with less and less tissue. In essence, this means more refined criteria, greater diagnostic use of electron microscopy and other special ways of studying tissue and expanding use of aspiration biopsy.

With such limited illustrations of the changes in the department during the year, it should be clear that the laboratory is responding to the needs of the special patient population of the Deaconess, and that, with the outstanding resources which the hospital has provided, we intend to continue to respond, no matter how complex the patient problems become.

Merle A. Legg, M.D.
Chairman

Any patient's hospitalization involves contact with many health care disciplines—dietitians, physical therapists, respiratory therapists, chaplains, social workers, and others. The nurse intervenes on the patients behalf to facilitate integration of the contributions of all these disciplines into the patient's plan of care.



Report of the Department of Surgery

New England Deaconess Hospital offers many sophisticated services to patients in the course of their treatment, and many individuals from various specialty areas are involved in delivering this care to patients.

The Annual Surgical Report of previous years has dealt with accomplishments of our staff, the updating of sophisticated equipment, the number and types of operations performed, and our involvement in teaching. This year, it is fitting that the function of the supporting nurse services in the operating and recovery rooms should be reported.

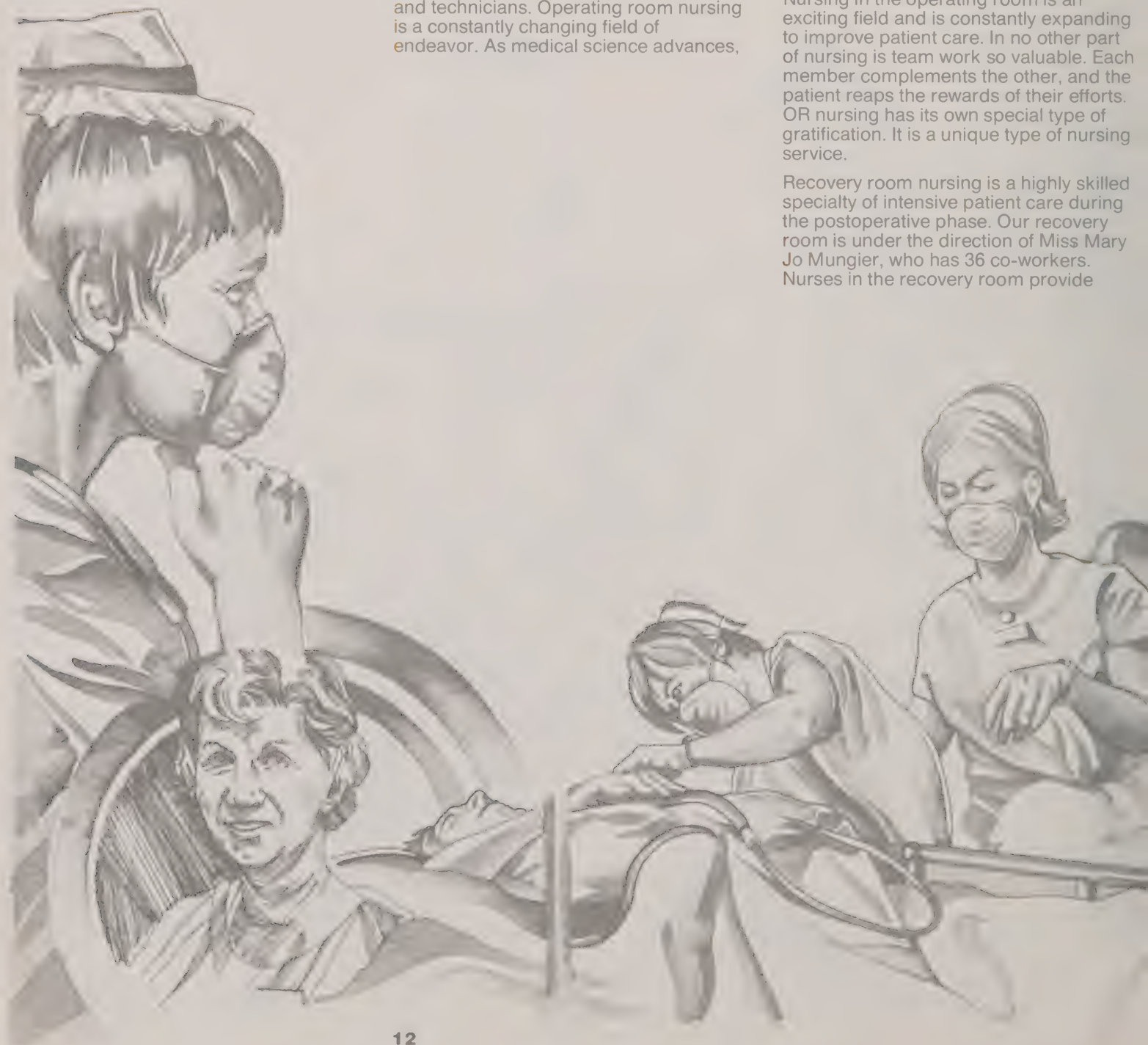
The Department of Surgical Services, under the direction of Miss Margaret Burns, involves 160 employees and a budget of more than three and a half million dollars.

Few patients realize how much the operating room and recovery room personnel contribute to their care. The operative procedures successfully performed today at the New England Deaconess Hospital are possible by the able assistance given to the surgeons by highly skilled operating room and recovery room nurses. Mrs. Madelyn Celander, a New England Deaconess Hospital graduate, is assistant director of the surgical service and supervisor of our operating room. She is responsible for 55 employees who are mostly OR nurses and technicians. Operating room nursing is a constantly changing field of endeavor. As medical science advances,

these nurses must develop new skills and techniques to keep abreast of current practice. Operating room nurses wear many caps — scrub assistants, circulating nurses, perfusion nurses, team leaders, or unit leaders. All these responsibilities are challenging and require expertise in many aspects in order to provide optimum nursing care to patients and excellence in service to surgeons. Individual nurses are expected to have an understanding of the patient's physical and psychologic needs and to provide means of support. They must know the fundamentals and use of all types of sterilizers and fiberoptic, cryogenic, and electronic equipment and must have a knowledge of the principles of anesthesia, perfusion, various types of monitoring devices, and electrosurgery. They must be experts in aseptic technique and in safety measures and must recognize the need for and maintain an efficient bacteriologically safe environment. The nurses keep legal aspects in mind and are alert to the importance of accurate record keeping and boundaries of responsibilities.

Nursing in the operating room is an exciting field and is constantly expanding to improve patient care. In no other part of nursing is team work so valuable. Each member complements the other, and the patient reaps the rewards of their efforts. OR nursing has its own special type of gratification. It is a unique type of nursing service.

Recovery room nursing is a highly skilled specialty of intensive patient care during the postoperative phase. Our recovery room is under the direction of Miss Mary Jo Mungier, who has 36 co-workers. Nurses in the recovery room provide



reassurance and support to every patient and are constantly monitoring all individual modalities. Specialized skills are used in ECG interpretations of symptoms and emergency measures of treatment, and they must understand the fundamentals in the use of all types of monitoring and electronic equipment.

Recovery room nursing is carried out by teams in direct cooperation with the surgical staff who depend heavily on their expertise. The team must be cognizant of proper nursing practices and must be able to differentiate all body symptoms for good medical management. In-service programs are conducted regularly to call attention to changes and advancements in provisions of care and treatment. In the recovery room, each nurse must have an understanding of anesthetic agents and their effects on the systems of the body. This knowledge coincides with awareness of various drug actions on patients in the postanesthesia state. Critically ill patients demand an atmosphere of attention unsurpassed in medical care. The many mechanical devices presently in use are only of value when the operator knows and

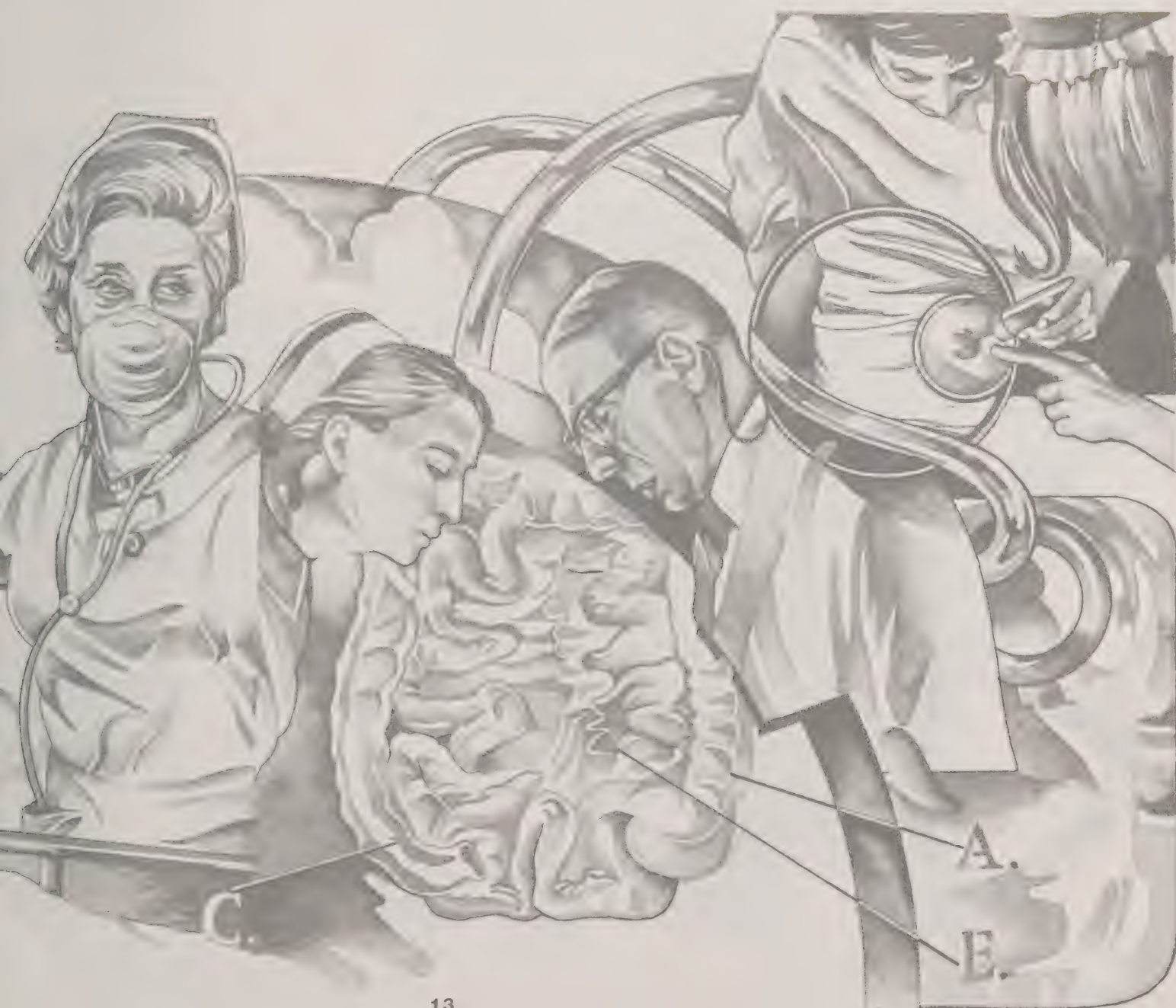
distinguishes monitor effects from patient problems. Thus, an understanding of mechanics is vital if the equipment used is to be of any assistance to the nurse. Good judgment, increased knowledge, and prompt action by the recovery room personnel do, in fact, create this necessary atmosphere. This type of nursing is care of patients on a high level and gives great satisfaction to nurses and patients. Provisions of care for all patients are continually surveyed through the use of weekly audits that include patient welfare, safety and records, cubital conditions, and total environment. This quality measurement creates awareness of deficiencies so that procedures can be altered and revised as indicated.

We are fortunate at the New England Deaconess Hospital to have such excellent surgical service under the competent leadership of Miss Burns, Miss Mungier, and Mrs. Celandier.

Cornelius E. Sedgwick, M.D.
Chairman

In the operating room, the patient is greeted by the charge nurse who checks the patient's chart to be sure he has had his pre-op medication, chest x-ray, EKG, and laboratory tests. The nurse then checks the Doctor's Order Sheet for any special instructions in caring for the patient while in the OR. Nurse anesthetists prepare the patients for anesthesia, and scrub nurses prepare for assisting the surgeon during the patient's operation.

The recovery room equals the operating room with the latest, most modern equipment and highly qualified nurses and supportive team members. There the nurse checks the patient through the admission procedure, initiates the doctor's orders, and writes her notes. A 'special' nurse is assigned to care for the patient during the immediate post-operative phase but, after awakening and stabilizing, the patient is looked after by any of the 26 nurses who work in the area.



Report of the Joint Center for Radiation Therapy

The New England Deaconess Hospital employs clinical nurse specialists in the practice areas of ostomy, cardiology, stroke, oncology and psychiatry nursing. In collaboration with the physicians and other health professionals, their major activity is to help ensure that patients return to their maximum level of functioning.

These nurses serve as role models in direct clinical practice, as advisors and consultants to the nursing staff in planning patient care, and as change agents by integrating new knowledge into practice.

This has been the eighth year of the Joint Center for Radiation Therapy. During this last year 2,071 new patients were seen. This represents an 8.5% increase in new patients. Distribution is as follows:

New England Deaconess Hospital	640
Peter Bent Brigham Hospital	527
Beth Israel Hospital	451
Children's Hospital Medical Center	226
Boston Hospital for Women	129
Faulkner Hospital	66
Sidney Farber Cancer Center	32

The facilities of the Joint Center for Radiation Therapy have been expanded greatly with the opening of the enlarged department at the New England Deaconess Hospital. This department is tastefully appointed and designed to allow a smooth patient flow from direct entrance through reception, examination, clinical evaluation and treatment. Treatment facilities have been expanded significantly with the additional Siemens 12MeV linear accelerator installed in the

new unit. Thus, the Joint Center has 5 linear accelerators; 2 at the Peter Bent Brigham, 1 at the Beth Israel, and now 2 at the New England Deaconess. The new linear accelerator is needed for the increasing number of patients, but in addition it provides for application of radiation in way previously not possible.

The teaching activities of the Joint Center continue to emphasize residency training for physicians, postdoctoral and graduate education for physicists and the training of therapeutic radiologic technologists. Currently there are 12 residents, and the program in radiologic physics has 4 students for Masters Degree and 7 for Ph.D. There are currently 10 technologists in training.

Clinical research is a major activity of the Center. Treatment of carcinoma of the breast primarily with radiation therapy and without mastectomy has long been an interest. Now sufficient patients are available for analysis and the results have been published and presented at a number of national meetings. The results are quite gratifying, indicating remarkably good local control while maintaining the breast and underlying muscle with little if any radiation changes. Excellent results have been indicated in early stage Hodgkin's disease both in



children and adults treated with radiation therapy alone. Treatment of more advanced Hodgkin's disease has also been improved using combined chemotherapy and radiation therapy in judicious schedules. The treatment of non-Hodgkin's lymphoma with total body radiation has been studied and this treatment has been found to have little morbidity and is the most effective treatment thus far for one generalized form of this disease. Current research is concerned with appropriate methods of combining this therapy with chemotherapy.

There have been a number of studies carefully reviewing our clinical experience, such as a review of the therapy of pelvic rhabdomyosarcoma and combined therapy of osteosarcoma in children, an analysis of the utility of the central nervous system radiation in acute leukemia, a review of our experience with endometrial carcinoma, an analysis of

the excellent cosmetic results in the treatment of carcinoma of the eye lid using contact therapy, and an analysis of the cause and possible future prevention of the major optic complications in radiotherapy for the pituitary tumors. Currently being studied is the usefulness of radiation therapy in combination with surgery in the treatment of a variety of unusual gastrointestinal tumors. Important to this and many other projects has been the availability this past year of radioactive gold seeds for implantation in the operating room of such otherwise inaccessible tumors. This has been made possible by the physics group arranging for the local activation of these seeds. Such a program would not be available to any of the hospitals individually but only through such a combined effort of the Joint Center.

A multi-faceted laboratory research program is presented by the Joint Center, primarily in the Shields Warren Radiation Laboratories, covering research activities far too numerous to describe in the limited space assigned. But, it is expected that results of the research projects will have major clinical implications on treatment capabilities through improved techniques and equipment. One of the major efforts, for example, is to improve the distribution of dose in radiation therapy by controlling all possible machine motions and dose rate of the linear accelerator with a computer, all while the patient is being irradiated. Considerably more complex

treatments can be administered safely in this manner. This new capability will then be used to increase the selectivity with which high doses are given to the tumor and low doses to the surrounding healthy tissues. The therapy machine capable of delivering this radiation with this technique has been installed at the New England Deaconess Hospital in cooperation with the Siemens Corporation.

In summary, patient care, education, and a multi-faceted research program continue to be the major activities in the Joint Center for Radiation Therapy. The predominant theme throughout all these activities is the development and application of techniques which will maximize the damage to tumors while minimizing the damage to normal tissues. This requires research and development in physical methods, biologic understanding, and the judicious use of combinations of radiation and chemicals. These activities must be studied in the laboratory but successful techniques only reach full realization when they can be applied to benefit our patients.

Samuel Hellman, M.D.
Director



Report of the Shields Warren Radiation Laboratory

Realizing the complexity of our system of care, the nursing service department has stressed the importance of patient teaching and placed this ultimate responsibility for coordinating this teaching and its documentation, with the nurse. His or her awareness of the on-going procedures and treatments on the one hand, and of the patient's and family's needs on the other, gives the nurse an overall perspective for planning and implementing appropriate teaching.

The Shields Warren Radiation Laboratory serves as a radiological research center for the New England Deaconess Hospital and for staff from other Harvard affiliated hospitals of the Longwood Avenue complex. Its broadly based programs consider the use of ionizing radiations (e.g. x-rays) in both therapy and diagnosis, and also their potential hazards in industry. Much of this work relates directly to cancer, but much of it is important for general medical practice.

The Laboratory, fully occupied for some years, is now entering a new "outreach" phase in its history. Scientific staff who belong to its core organizations are working in research projects that are located in other laboratories. Obviously, such expanded effort makes for greater efficiency, both economically and intellectually.

The Laboratory is financially self-supporting, and its current annual research grants for direct and indirect costs come to about \$1,900,000. This figure, however, does not include salary and other support provided for most of the senior staff by their Harvard and hospital affiliations. The bulk of the direct funding comes from the National Institutes of Health through two "center" grants, titled, Cancer Center grant and Center for Radiological Research.

A large number of studies are under way, of which a few may be mentioned here. During the past year or two, the experimental radiation therapy group has begun to study how both drugs and radiation may be used together efficiently in the treatment of cancer. Central to the design of these studies is the question, does drug treatment interfere with radiation treatment, and vice versa, or can synergism be achieved? Some interactions have been found, and it is clear that this experimental question is important.



Diagnostic studies follow two paths. In experimental nuclear medicine radioactive technetium is being used to label specific compounds whose passage through the body can then be followed with radiological equipment. Tests undergoing development at present include one for bone disease and another for a more refined examination of myocardial infarction. Another test aims to label erythropoietin, an agent that promotes the formation of red blood cells.

The experimental radiology group is especially interested in the study of the vascular system — how its condition can be evaluated in various diseases of the heart, kidney and gastrointestinal tract, for example. These radiological studies have led in turn to a major interest in the physiological — normal and abnormal —

factors that control the development of blood supply on the one hand, and blood pressure on the other. It may be noted that blood-supply factors are of great importance for growth, and that this is particularly important for certain types of cancer. The group is also interested in the improvement of diagnostic techniques and is working with ultrasound and computerized axial tomography.

Experimental pathology and radiation biology have been concerned especially with defining more precisely the

damaging effects of radiation exposure. The pathology group, for example, has been interested in why radiation is likely to induce some experimental tumors much more readily than others, and how (in one case, breast cancer) the effect of radiation on endocrine balance can shift the incidence rate of a cancer.

The radiation biology program concentrates on genetic effects — the relation between parental exposure and the appearance of mutant characteristics in the progeny. These experiments with specific genes in mice continue to support the conclusion that our total knowledge in the field is not adequate to evaluate the magnitude of the problem, and that much more research is needed. In some instances, for example, the tendency to mutation has been much less than might have been expected. To obtain further perspective, experiments with chemical mutagens are to be initiated.

Henry I. Kohn, M.D.
Director



**Report of the
Cancer Research Institute**

The year 1976 was a landmark for the Cancer Research Institute marking the 25th anniversary of its dedication as the first institute in New England devoted to the study of cancer and cancer detection. Ceremonies were held in September honoring Dr. Shields Warren, who founded the institute, and reports were presented of studies done in the several divisions within the institute.

During the year research activity has continued to grow as has the grant support provided principally from the National Institutes of Health, even in a time when such funds have been generally restricted. However, the development of new divisions and the increased activity without the concurrent availability of increased research space have resulted in considerable crowding and will ultimately cause the restriction of further expansion.

A significant direction of the institute is the increasing collaboration with other hospital departments in research activities and in the increasing application of methods of research to human cancer.

Experimental Pathology

Long-term experiments on carcinogenesis in irradiated parabiont rats have now been completed and the computerized data are being analyzed. Parabiosis, if one of the rats is shielded, permits the heavily irradiated (1000 R) partner to survive a dose that would be lethal were it received by a single animal. This enables investigation of the effects of high doses of radiation. The parabiont rat also provides a readily manipulated hormonal environment in which radioimmune assay of hormonal levels is being carried on in cooperation with the Laboratory of Human Reproduction and Reproductive Biology. Preliminary results indicate that the striking changes induced in the prostate gland by changes in hormonal levels may provide useful information for prostatic disease in man.

Studies of the adrenal cortex and leukemia and lymphoid tumors in rodents are also under way.

Nurses, as a part of their daily care, assist the patient in dealing with feelings and concerns that accompany illness and hospitalization. They observe patients for symptoms of inability to deal appropriately with these emotions and to utilize the services of others to help the patients with their adjustment.



Clinical Studies

Based on a grant concerned with the Early Diagnosis of Pancreatic Cancer, studies on cancer markers (selected enzymes and isoenzymes) in portal and systemic blood are under investigation. A number of different diagnostic techniques are being studied in collaboration with Radiology and with other divisions in the CRI.

Effects of dearterialization of liver for metabolic cancer have been reported, and the evaluation of so-called 'benign' hepatomas occurring in young women taking contraceptive drugs is contributing to better understanding of the pathogenesis of this particular entity.

Biochemistry

Collaboration in the Pancreatic Cancer Project now serves as the focus for the reexamination of the use of serum enzymes for diagnoses. The strategy is to find and use not one but several chemical markers of cancer simultaneously in computer-assisted discriminations of disease from normal state.

Growth Laboratory

The first series of biochemical studies on fetal and adult human lung were completed this year demonstrating the general resemblance between normal immature and neoplastic lung. A small set of enzymes were identified whose amount or isozyme pattern clearly distinguished non-neoplastic portions of the human lung from its tumors.

Nutrition Metabolic Laboratory

During the past year important contributions have been made to the study of biology of injury, malnutrition and cancer. The establishment of a Nutrition Clinic in CRI has facilitated studies in pre and post operative metabolism and nutritional support. Ambulatory patients are seen in the clinic, and those on 'home hyperalimentation' are provided follow-up by a team of surgeons, physicians, dietitian, nurse, and clinical technician. Studies are being conducted in the role of intravenous and nutrition in patients undergoing radiotherapy for abdominal and pelvic malignancies, the role of nutritional support in improving weight and viscera function, and administering of enteral hyperalimentation to both hospitalized and ambulatory cancer patients. At the same time, animal experiments are under way to study the effect of malnutrition on immunologic competence.

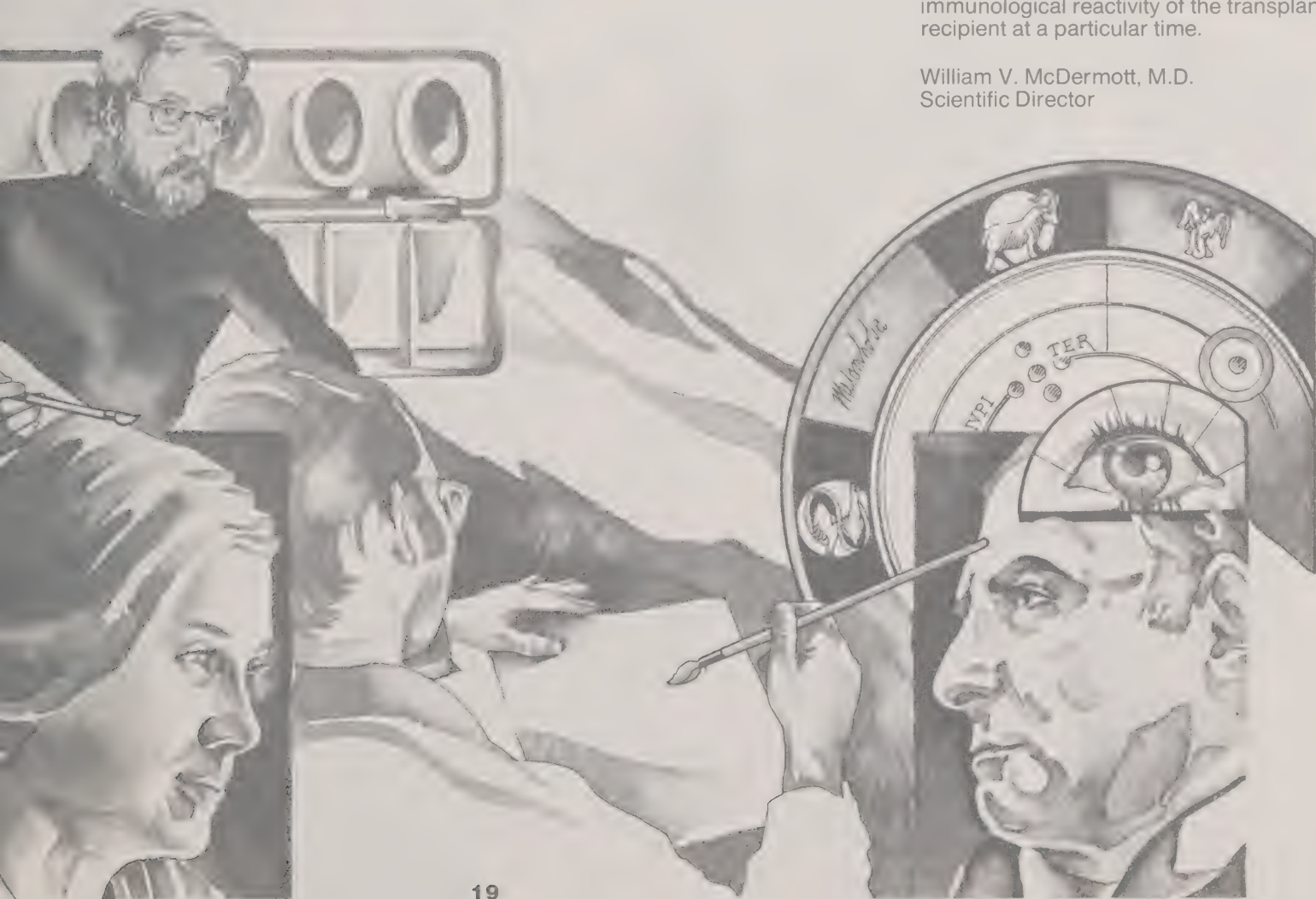
Transplantation and Cancer Immunobiology Unit

Three areas of investigation were dominant during fiscal 1976. The first involves studies on the augmented survival of mouse skin allografts induced by treatment with antilymphocyte serum and bone marrow. Currently being studied is the ability of Cytoxan to augment or decrease the specific prolongation achieved by donor bone marrow injection. The use of platelets is being looked into as a source of histocompatibility antigen for the induction of specific unresponsiveness in antilymphocyte serum treated mice. Platelets, if effective, would have great clinical application since they are readily available from both living and cadaver kidney transplant donors.

The second area of investigation involves the development of immunodiagnostic assays for bladder carcinoma. This project has progressed extremely well and several studies have been completed. An antigen in the urine of bladder cancer patients has been identified and an antiserum made to it, producing accuracy of 60 to 75 percent. Also, an extensive study of non-specific antigens in the urine of bladder cancer patients has been completed using polyacrylamide gel techniques and multiple chromatographic separation techniques.

A third area of study has been the immunological monitoring of kidney transplant patients who have been treated with antilymphocyte serum. This work has utilized the determination of rosette-forming cells in the peripheral blood as a means to identify the immunological reactivity of the transplant recipient at a particular time.

William V. McDermott, M.D.
Scientific Director



Report of the Friends of the Deaconess

Careful discharge planning begins early in the patients hospitalization. Nurses teach patients and families such things as the nature of their illness, how to live with any limitations imposed by their disease, and how to prevent recurrence and complications. They may also assist with the arrangements made for appropriate community resources. Such planning hastens the patients' convalescence and helps prepare them for eventual return to home, family, and job when possible or to provide for continuity of care in community agencies when this is not possible.

The Friends of the Deaconess have written a remarkable record of civic generosity over the past 45 years. At the end of my first year as president, I am humbled looking back over these years and seeing what they have accomplished.

Over five hundred members, including 63 life members, have contributed many volunteer working hours. Each volunteer also works seriously and earnestly at being a sort of liaison officer between the patient and the hospital to effect an understanding of the concern the doctors and the hospital staff feel for each individual patient, and to explain the scope and range of the workings of the hospital and the hospital's sincere emphasis on the patient's care. Our volunteers take great pride in the life and growth of the Deaconess Hospital and its goals to serve all who can benefit from its specialized facilities. They give willingly of their time and energy to work for its benefit. Our basic strength is in our service, and we have reason to be proud of the efforts of our volunteers. During the past year, we have raised:

Membership	\$ 1,567.00
Membership Gifts	2,457.50
Church gifts	3,023.29
Thrift shop	16,500.11
Gift Shop	20,000.00
Christmas Bazaar	2,840.46
Evening at Pops	1,410.45

Not all of our activities are for raising funds. A quiet service to the patients is that of our diversional therapy volunteers who visit at bedside and take many delightful projects to the patients for them to work on while they are convalescing, and who spend many hours just "talking" to them. These very dedicated women serve in this way and we are very proud of them.



Working closely with the hospital staff and the volunteers is our new program coordinator, Mrs. Robert Tilley, who in a few short weeks has arranged talks and tours of the new buildings for the staff wives. As a result of her efforts we are delighted to welcome twenty-nine new members to the Friends.

The Friends realize that Christmas is a sad time of year to be hospitalized, equally as difficult for the family as it is for the patient, and our Christmas Open House in the lobby of the Farr Building has been well attended. Last December we served over three hundred people with coffee, cider, doughnuts and many other goodies.

George Bernard Shaw is credited with saying "Happiness must be earned by action. It is a reward for effort." The many letters we receive from the students who are helped by the Friends' efforts give us all the reward we need.

The final payment of \$50,000 of our pledge of \$150,000 to the New England Deaconess Hospital Nursing School project will be made in December of this

year, proving once again that the Friends accepted a challenge and met it. As we toured this new building we knew that by our efforts we were a part of this school and could stand proud of our students.

For a test of one's sense of responsibility towards all people, none is more vigorous than the support of our health programs not only because they are important to our hospital but because they benefit all of society. Few things are more difficult than major changes but we are placing each and every member of our board into some specific spoke of our wheel thereby hoping that the upcoming year will find us sturdily facing

and working with these changes. The members of the Friends face these challenges because they are determined to preserve the purpose for which they were founded which is to give of our time, efforts and money for the benefit of the New England Deaconess Hospital. With the continuing confidence of our board and members we shall move successfully in this direction.

Evelyn Dempsey (Mrs. George A.)
President

Professional nursing today sees its role as the maintenance and promotion of health and the provision of evaluative, therapeutic, and rehabilitative services based upon scientific principles and given with compassionate concern.



New England Deaconess Hospital:

We have examined the balance sheet of New England Deaconess Hospital as of September 26, 1976 and September 28, 1975 and the related statements of revenues and expenses, changes in fund balances, and changes in financial position of unrestricted funds for the fiscal years (52 weeks) then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As more fully described in Note 1 to the financial statements, it is the consistent practice of the Hospital to record unrestricted legacies received as credits directly to unrestricted fund balances. In our opinion, generally accepted accounting principles require that such legacies be reported as nonoperating revenue.

In our opinion, the accompanying financial statements present fairly the financial position of the Hospital at September 26, 1976 and September 28, 1975 and, except for the effects of crediting unrestricted legacies received directly to unrestricted fund balances as described in the preceding paragraph, the results of its operations, changes in its fund balances, and changes in the financial position of its unrestricted funds for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Haskins & Sells
November 5, 1976

1. Accounting Policies

General

The accompanying balance sheet of the Hospital is presented in two basic fund accountabilities of unrestricted and restricted funds. Fund balances restricted by outside sources are included in restricted funds and are distinguished from unrestricted fund balances allocated to specific purposes by action of the Board of Trustees (trustee designated funds).

Restricted gifts and grants from restricted resources are added to the appropriate restricted funds. Restricted special purpose funds, when expended for current operating purposes, are transferred to unrestricted funds and are reported as other operating revenue.

It is the consistent policy of the Hospital to consider unrestricted legacies received (\$210,314 and \$243,799 in 1976 and 1975, respectively) as capital resources and to credit such receipts directly to unrestricted fund balances. Generally accepted accounting principles for hospitals, as set forth in the Hospital Audit Guide issued by the Committee on Health Care Institutions of the American Institute of Certified Public Accountants, require the reporting of such amounts as nonoperating revenue. Had the aforementioned amounts been so reported, the Hospital would have reported an excess (deficiency) of revenues over expenses of (\$75,261) in 1976 and \$361,420 in 1975.

Investments

Investments are stated at cost or, if received by gift or bequest, at fair market value when received. Substantially all of the Hospital's investments are included in an investment pool which is operated on the "market-value" method whereby each participating fund is assigned a number of units based on the market value of the assets of the pool at the time of entry of the fund into the pool. Income of the pool is allocated to participating funds based on their respective shares of the pool.

2. Estimate Settlement with Third-Party Payors

Preliminary calculations of final cost reimbursement adjustments relative to third-party contracts with Blue Cross and Medicare are reported in the accompanying balance sheet as a current liability. Cost reports to be filed for the current year, as well as cost reports filed for 1975, are subject to final determination by the reimbursement agency under each program. Variances between preliminary calculations and final settlements are included in the statement of revenues and expenses in the year in which the settlements occur.

Other

Other significant accounting policies are set forth in the financial statements and the notes which follow.

2. Property, Plant, and Equipment

Property, plant, and equipment of unrestricted funds are stated at cost less accumulated depreciation and are summarized as follows:

	1976	1975
Land	\$ 468,942	\$ 468,942
Buildings	19,043,347	19,937,149
Fixed equipment	11,021,177	12,800,068
Major movable equipment	7,293,254	5,576,282
Construction in progress	200,070	1,501,754
Total	28,996,790	31,207,195
Less accumulated depreciation	(13,381,775)	(12,210,804)
Property, plant, and equipment—net	\$15,615,015	\$19,000,000

Depreciation is computed using the straight-line method over the estimated useful lives of depreciable assets. As to certain depreciable assets acquired before 1971, the Hospital uses accelerated depreciation methods to determine reimbursable costs under a third-party reimbursement agreement. The revenue attributable to the excess of accelerated over straight-line depreciation is deferred and will be added to income when the depreciation timing differences reverse. Revenue thus deferred for 1976 and 1975 amounted to \$65,000 and \$70,000, respectively.

3. Long-Term Debt

On November 8, 1973, the Massachusetts Health and Educational Facilities Authority (the Authority) sold \$14,900,000 principal amount of revenue bonds, designated New England Deaconess Hospital Issue, Series A, and loaned the proceeds therefrom to the Hospital. With certain exceptions, principally the Medical Office Building, all of the Hospital's land and buildings (including contents) are pledged as collateral in connection with the mortgage conveyed by the Hospital to the Authority. The Hospital has also granted to the Authority a first lien on certain defined gross receipts (including related accounts receivable) as additional security for payment of the mortgage.

The mortgage agreement provides for payment to a debt service reserve fund of an initial deposit of principal and interest and subsequent monthly payments to a mortgage payment fund in amounts proportionate to the Authority's (a) annual principal payments on sinking fund installments ranging from \$450,000 in 1976 to \$525,000 in 2005 and (b) semiannual interest payments at rates varying from 4.6% to 5.7% over the lives of the bonds.

4. Endowment Funds Mortgage Note Payable

The endowment funds mortgage note bears interest at 5 1/4% and is payable in monthly installments through January 1991, including, at September 26, 1976, \$105,000 due within one year. The Medical Office Building is assigned as collateral under the terms of this mortgage.

5. Employees' Retirement Plan

The Hospital has a noncontributory defined benefit retirement plan covering substantially all full-time employees not over age 55 at date of employment. Total pension expense aggregated \$1,216,000 in 1976 and \$940,000 in 1975 including, in both years, amortization over a forty-year period of the unfunded actuarially computed past service liability. Such unfunded liability approximated \$4,415,500 as of October 1, 1976, the last plan valuation date. The actuarially computed value of vested benefits under the plan as of the last plan valuation date exceeded the total of the pension fund net assets and balance sheet accounts by approximately \$3,325,000.

6. Malpractice and Comprehensive Liability Insurance

In March, 1976 the Hospital, together with ten other area institutions commonly referred to as the Harvard affiliated medical institutions, formed a captive insurance company, Controlled Risk Insurance Company, Ltd. (CRICO). Effective April 1, 1976, the Hospital placed its malpractice and comprehensive liability insurance coverage with CRICO and changed the coverage from an occurrence basis policy to a claims-made policy. Claims based on occurrences prior to April 1, 1976 are insured under the Hospital's previous policy. The new policy, which is subject to renewal on an annual basis, covers only claims actually made during the term of the policy, but not those occurrences for which claims may be made after expiration of the policy.

7. Funds Held in Trust by Others

The Hospital is a beneficiary of a non-discretionary trust held by others which is not reported on the accompanying balance sheet. The quoted market value of the Hospital's share of trust assets was \$1,869,200 at September 26, 1976 and \$1,609,823 at September 28, 1975. The Hospital received distributions of income from the trust of \$90,384 in 1976 and \$90,762 in 1975.

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